

REMARKS**A. Summary of Amendment to the Claims**

By the present response no claims have been amended. Thus, upon entry of the response, claims 1-5 and 7-29 will remain pending in the present application, of which claims 1-5, 12, 14-21, 27 and 29 are withdrawn from examination.

In view of the finality of the March 17, 2010 Office Action and to ensure substantive consideration of this response, a Request for Continued Examination is concurrently submitted herewith, together with payment of the appertaining RCE fees (see *infra*, "CONCLUSION").

B. Priority

As acknowledged by the examiner, the present application claims priority to Korean Applications 10-2003-0051140 and 10-2003-0051826 with filing dates of July 24, 2003 and July 26, 2003, respectively. In the Final Office Action mailed October 28, 2008 the examiner acknowledged receipt of certified copies of the priority documents. The examiner has further requested that applicants provide a translation of the earlier filed foreign applications to which priority is claimed.

In accordance with the examiner's request and the requirements of 35 U.S.C. §119(b)(3) and 37 C.F.R. §1.55(4)(i)(C), applicants provide herewith:

- 1) Certified copy of original Korean Application 10-2003-0051140, showing filing date of July 24, 2003;
- 2) English translation of Korean Application 10-2003-0051140 and Certificate of translation of Korean Application 10-2003-0051140;
- 3) Certified copy of original Korean Application 10-2003-0051826, showing filing date of July 26, 2003;
- 4) English translation of Korean Application 10-2003-0051826 and Certificate of translation of Korean Application 10-2003-0051826.

The priority claim has previously been made, claiming priority to Korean Application 10-2003-0051140, filed July 24, 2003 and Korean Application 10-2003-0051826, filed July 26, 2003.

Acknowledgement of the perfection of the priority claim to Korean Application 10-2003-0051140, filed July 24, 2003 and Korean Application 10-2003-0051826, filed July 26, 2003 is respectfully requested.

C. Rejection Under 35 U.S.C. §102/103

In the Office Action mailed March 17, 2010, the examiner maintained the rejection of claim 7 under 35 U.S.C. §102(e) as anticipated by or, alternatively, obvious over U.S. Patent Application No. 2004/0142285 (hereinafter “Jung et al.”). Applicants respectfully traverse the rejection.

Jung et al. is not qualified as prior art under 35 U.S.C. §102(e) against the present application.

35 U.S.C. §102(e) provides, in relevant part:

“A person shall be entitled to a patent unless...

“(e) the invention was described in - (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent...”

As presented above, applicants have complied with all requirements to perfect the priority claim to Korean Applications 10-2003-0051140 and 10-2003-0051826 with filing dates of July 24, 2003 and July 26, 2003, respectively. Accordingly, the claims of the present application are entitled to the priority date of at least July 24, 2003.

By the present response, certified translations of the priority documents have been provided, in addition to certified copies of the original applications. Korean Applications 10-2003-0051140 and 10-2003-0051826, clearly provide support for the claimed CNTs and clearly demonstrate all steps of independent claims 7 and 22. Specific support for each element of the claims is identified in the following table:

| <u>Claim</u> | <u>Text</u> | <u>Support in priority Korean Applications 10-2003-0051140 & 10-2003-0051826</u> |
|--------------|--|---|
| 7 | A high density carbon nanotube (CNT) film or pattern consisting of laminated CNT layers, wherein the layers are bound together by reaction of a carboxyl group and an amine group and wherein a top layer has exposed carboxyl groups on the surface thereof, and wherein the CNT film or pattern is prepared by a method comprising the steps of: | Examples 1-3 of 10-2003-0051140; Fig. 1 of 10-2003-0051140; Examples 1-3 of 10-2003-0051826; Fig. 1A-C of 10-2003-0051826 |
| 7(a) | reacting a substrate having amine groups exposed on the surface or a substrate having amine groups exposed in a pattern with CNT having exposed carboxyl groups to form a CNT single layer or single layer pattern on the surface of the substrate by amidation reaction between the amine groups and the carboxyl groups; | Examples 2&3 of 10-2003-0051140; Examples 2&3 of 10-2003-0051826; and Fig. 1A of 10-2003-0051826 |
| 7(b) | reacting the CNT single layer or single layer pattern with an organic diamine to modify the CNT single layer with organic | Example 3 of 10-2003-0051140; Example 3 of 10-2003-0051826; and Fig. 1B of 10-2003-0051826 |

| <u>Claim</u> | <u>Text</u> | <u>Support in priority Korean Applications 10-2003-0051140 & 10-2003-0051826</u> |
|--------------|--|---|
| | amine groups and reacting the organic amine groups with the CNT having exposed carboxyl groups to laminate a CNT layer thereon, wherein the CNT layer is laminated directly on the CNT single layer or single layer pattern by reaction of the amine groups and the carboxyl groups; and | |
| 7(c) | repeating step (b) to form laminated CNT layers, thereby forming a high density CNT film or pattern having exposed carboxyl groups. | Example 3 of 10-2003-0051140; Example 3 of 10-2003-0051826; and Fig. 1C of 10-2003-0051826 |
| 22 | A high density CNT film or pattern consisting of laminated CNT layers wherein the layers are bound together by reaction of a carboxyl group and an amine group and wherein a top layer has exposed carboxyl groups on the surface thereof, and wherein the CNT film or pattern is prepared by a method comprising the steps of: | Examples 1-3 of 10-2003-0051140; Fig. 1 of 10-2003-0051140; Examples 1-3 of 10-2003-0051826; Fig. 1A-C of 10-2003-0051826 |
| 22(a) | reacting a substrate having amine groups exposed on the surface or a substrate having amine groups exposed in a pattern with CNT having exposed carboxyl groups to form a CNT single layer or single layer pattern on the surface of the substrate by amidation reaction between the amine groups and the carboxyl groups; | Examples 2&3 of 10-2003-0051140; Examples 2&3 of 10-2003-0051826; and Fig. 1A of 10-2003-0051826 |
| 22(b) | reacting the CNT single layer or single layer pattern with an organic diamine to form an organic amine layer on the CNT single layer and reacting the organic amine groups with the CNT having exposed carboxyl groups to laminate a CNT layer thereon, wherein the CNT layer is laminated directly on the CNT single layer or single layer pattern by reaction of the amine groups and the carboxyl groups; | Example 3 of 10-2003-0051140; Example 3 of 10-2003-0051826; and Fig. 1B of 10-2003-0051826 |
| 22(c) | repeating step (b) to form laminated CNT layers, thereby forming a high density CNT film or pattern having exposed carboxyl groups; and | Example 3 of 10-2003-0051140; Example 3 of 10-2003-0051826; and Fig. 1C of 10-2003-0051826 |
| 22(d) | modifying the high density CNT film or pattern having exposed carboxyl groups with a chemical compound having both a functional group capable of binding to a carboxyl group and a chemical functional group selected from the group consisting of amine group, aldehyde group, hydroxyl group, thiol group and halogen; | Example 3 of 10-2003-0051140; Fig. 1&2 of 10-2003-0051140; Example 4 of 10-2003-0051826; and Fig. 1-3 of 10-2003-0051826 |
| 22 | wherein the high density CNT film or pattern has exposed chemical functional groups on its surface, in which the chemical functional groups are any one selected from the group consisting of amine groups, aldehyde groups, hydroxyl groups, thiol groups and halogens. | Example 3 of 10-2003-0051140; Fig. 1&2 of 10-2003-0051140; Example 4 of 10-2003-0051826; and Fig. 1-3 of 10-2003-0051826 |

In view of these priority claims and the substance provided within the references, the date of “invention by the applicant” has been shown to be at least as early as July 24, 2003.

Jung et al. was filed on October 27, 2003, which is later than the date of “invention by the applicant.” Accordingly, Jung et al. is not properly cited as a reference under 35 U.S.C. §102(c)

and withdrawal of the rejection of claim 7 under 35 U.S.C. § 102(e) as being anticipated by Jung et al. is respectfully requested.

As Jung et al. does not properly qualify as a prior art reference, withdrawal of the rejection of claim 7 under 35 U.S.C. § 103 as obvious over Jung et al. is also respectfully requested.

D. Rejection Under 35 U.S.C. §103

In the Office Action mailed March 17, 2010, the examiner maintained the rejection of claims 7, 8-11, 13, 22-26, and 28 under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 6,872,681 (hereinafter “Niu et al.”) in view of Jung et al. Applicant respectfully traverses such rejection.

In the rejection at page 7 of the Office Action mailed March 17, 2010 the examiner acknowledges that “Niu et al. do not teach the carboxylated CNT/diamine multilayer form or pattern made in the manner set forth in claims 7c and 22c.” Jung et al. is cited to remedy the deficiencies of Niu et al. However, as set forth in detail above, Jung et al. is not properly cited as a reference under 35 U.S.C. §103, as the invention by the applicant was prior to the filing of Jung et al.

Niu et al. alone does not render the claims obvious and Jung et al. is not properly cited as a reference under 35 U.S.C. §103. Accordingly, no basis of *prima facie* obviousness of the claimed invention is presented by such cited references. Therefore neither of claims 7 or 22 is obvious in view of the cited combination of references.

Claims 7 and 22 are independent claims pending in the present application. All of claims 8-11, 13 and 23-26 depend directly or indirectly from either claim 7 or claim 22. It is well established that if an independent claim is nonobvious under 35 U.S.C. §103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). (MPEP §2143.03). It is respectfully submitted that neither of independent claims 7 or 22 is obvious in view of the cited combination of Niu et al. and Jung et al. Correspondingly, dependent claims 8-11, 13 and 23-26 are similarly nonobvious.

Withdrawal of the rejection of claims 7, 8-11, 13, 22-26, and 28 under 35 U.S.C. § 103(a) as being obvious over Niu et al. in light of Jung et al. is respectfully requested.

CONCLUSION

Based on the foregoing, all of applicants' pending claims 7-11, 13, 22-26, and 28 are patentably distinguished over the art, and in form and condition for allowance. The examiner is requested to favorably consider the foregoing and to responsively issue a Notice of Allowance.

The time for responding to the March 17, 2010 Office Action without extension was set at three months, or September 17, 2010. Applicants hereby request a three month extension of time under 37 CFR § 1.136 to extend the deadline for response to September 17, 2010. Payment of the extension fee of \$555.00 specified in 37 C.F.R. § 1.17(a)(3) and the RCE fee of \$405.00 specified in 37 C.F.R. § 1.17(e), as applicable to small entity, is being made by on-line credit card authorization at the time of EFS submission of this Response. Should any additional fees be required or an overpayment of fees made, please debit or credit our Deposit Account No. 08-3284, as necessary.

If any issues require further resolution, the examiner is requested to contact the undersigned attorneys at (919) 419-9350 to discuss same.

Respectfully submitted,

/steven j. hultquist/
Steven J. Hultquist
Reg. No. 28,021
Attorney for Applicants

/kelly k. reynolds/
Kelly K. Reynolds
Reg. No. 51,154
Attorney for Applicants

INTELLECTUAL PROPERTY/
TECHNOLOGY LAW
P.O. Box 14329
Research Triangle Park, NC 27709
Phone: (919) 419-9350
Fax: (919) 419-9354
Attorney File No.: 4240-104-RCE2

Enclosures:
RCE Transmittal

| |
|---|
| The USPTO is hereby authorized to charge any deficiency or credit any overpayment of fees properly payable for this document to Deposit Account No. 08-3284 |
|---|